

The Claims

1. A method of making an electrode assembly for an electrochemical cell comprising the steps of:

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- a) providing a combination of an elongated anode electrode, an elongated cathode electrode and separator therebetween in a face-to-face relationship wherein one of the anode and cathode electrodes is shorter in length than the other of the anode and cathode electrodes;
- b) folding the combination using a mandrel to form an anode-cathode electrode assembly having a jellyroll type configuration;
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- c) said folding the combination including a first step of folding the longer one of the electrodes on itself about the mandrel and subsequent steps of folding both of the electrodes about the mandrel to form the anode-cathode electrode assembly; and
- d) so that upon removal of the mandrel in the event any portion of the separator contacted by the mandrel is impaired only portions of the longer one of the electrode can contact each other thereby preventing any electrical short circuit due to the separator being impaired in a cell containing said anode-cathode electrode assembly.

2. The method according to claim 1, wherein said step of providing the anode and cathode with separator therebetween comprises encasing at least one of the anode and cathode in separator material.

3. The method according to claim 2, wherein both of the anode and cathode are encased in separator material.

4. The method according to claim 1, wherein said step of providing the anode and cathode with separator therebetween comprises providing an elongated separator in face-to-face relation with and between the anode and cathode.

5. The method according to claim 1, wherein said anode-cathode sub-assembly is formed to have a curved surface for conforming to a curved wall of a casing of an electrochemical cell containing said anode-cathode sub-assembly.

6. The method according to claim 5, wherein each of said anode, cathode and separator is provided with a plurality of scallops along one edge thereof wherein each of said scallops has a curvature corresponding to said curved surface of said anode-cathode sub-assembly.

7. The method according to claim 1, wherein said anode is of alkali metal and further comprising the steps of:

- a) placing the anode-cathode sub-assembly in a conductive cell casing of prismatic shape having opposed flat faces;
- b) attaching a lead of one of the anode or cathode to the cell casing and connecting a lead of the other of the anode or cathode to an electrical connector means extending through the casing in an insulated manner;
- c) introducing liquid electrolyte to said anode-cathode sub-assembly in said casing; and

d) sealing said casing;

e) whereby a solid cathode liquid electrolyte alkali metal high rate cell is formed including said electrode assembly.

8. The method according to claim 7, wherein said casing has a curved wall between the opposed flat faces thereof and wherein said anode-cathode sub-assembly is formed to have a curved surface which conforms to said curved wall of said casing.

9. The method according to claim 8, wherein each of said anode, cathode and separator is provided with a plurality of scallops along one edge thereof wherein each of said scallops has a curvature corresponding to said curved surface of said anode-cathode sub-assembly.

10. The method according to claim 1, wherein said anode is of lithium.

11. An electrode assembly for an electrochemical cell comprising the combination of an elongated anode electrode, an elongated cathode electrode and separator therebetween in a face-to-face relationship wound in a jellyroll type configuration wherein at the innermost portion of the assembly one of the electrodes is folded upon itself to define a pocket with only separator therein so that in the event that any portion of the separator within said pocket is damaged only portions of said one electrode can contact each other thereby preventing an electrical short circuit in a cell containing said anode-cathode electrode assembly.

12. An electrode assembly for an electrochemical cell comprising:

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- a) the combination of an elongated anode electrode, an elongated cathode electrode and separator therebetween in a face-to-face relationship and wound in a jellyroll type configuration;
  - b) one of the anode and cathode electrodes being shorter in length than the other of the anode and cathode electrodes;
  - c) the longer of the electrodes being folded upon itself at the innermost portion of the assembly to include two sections of the longer electrode facing each other with only separator therebetween; and
  - d) so that in the event of damage to the separator between the two sections of the longer electrode only those two sections can contact each other thereby preventing any electrical short circuit in a cell containing said anode-cathode assembly.
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13. A solid cathode liquid electrolyte alkali metal high rate cell comprising:

- a) a casing of electrically conductive material and of prismatic shape having opposed flat faces;
- b) an electrode assembly comprising the combination of an elongated anode electrode, an elongated cathode electrode and separator therebetween in a face-to-face relationship wound in a jellyroll type configuration wherein at the innermost portion of the assembly one of the electrodes is folded upon itself to define a pocket with only separator therein so that in the event that any portion of the separator within said pocket is

- c) a non-aqueous liquid electrolyte in said casing and operatively contacting said anode and said cathode;
- d) means for electrically connecting one of said anode or cathode to said casing;
- e) means for electrically connecting the other of said anode or cathode to an electrical connector means extending through said casing in an insulated manner; and
- f) means for hermetically sealing said casing.

15. A cell according to claim 13, wherein said anode is connected electrically to said casing to provide a cell of case negative electrical configuration.

17. A cell according to claim 16, wherein each of said anode and cathode has a plurality of scallops along one edge thereof wherein each of said scallops has a curvature corresponding to said curved surface of said anode-cathode sub-assembly.

